ARS Science Hall of Fame

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Agricultural Research Service

A special website is available that features photographs and biographies of all ARS Science Hall of Fame inductees since the inaugural year of 1986. Special features include browse and search functions and video clips from interviews with some members of the Hall of Fame.

Please visit www.ars.usda.gov/careers/hof/

Agricultural Research Service
SCIENCE HALL OF FAME

The ARS Science Hall of Fame was inaugurated in 1986. We determined that each succeeding year, one or more present or former scientists with the Agricultural Research Service could be selected, subject to the following criteria:

The selectee made widely recognized impact on agricultural research by the solution of a significant agricultural problem through research.

The selectee is a person whose scientific accomplishments and stature continue to affect the agricultural research community and/or influence the development of science-based agricultural policy.

The selectee's character and record of achievement have brought major recognition and credibility to ARS and/or USDA, and are worthy of emulation by younger agricultural scientists.

The selectee's achievements must be or have been nationally and/or internationally recognized by peers in the scientific community.

Today we honor three outstanding scientists by inducting them into the Science Hall of Fame. A plaque citing the achievements of each will be added to the permanent exhibit in the George Washington Carver Center, Beltsville, Maryland.

Edward B. Knipling

Edward B. Knipling
Administrator

Jitender P. Dubey

Microbiologist
Animal Parasitic Diseases Laboratory
Beltsville, Maryland

For pioneering research in identifying and aiding in the control of protozoan diseases in livestock and humans.

Jitender Dubey's contributions to the control and biology of major parasitic diseases of livestock and humans have reversed the loss of billions of dollars for the animal industry, as well as saving the lives of innumerable children.

Dubey worked principally on three single-cell organisms: *Toxoplasma gondii*, *Neospora caninum*, and *Sarcocystis neurona*. Toxoplasmosis, caused by *T. gondii*, is a devastating disease among congenitally infected children and a major cause of foodborne disease in the United States. Each year, it also causes spontaneous abortion in millions of ewes worldwide. Dubey has spent years developing methods for identifying the presence of *T. gondii* and guidelines for rendering infected meat safe for consumption

Neospora caninum causes spontaneous abortion in livestock and paralysis in household pets. Loss of calves costs the worldwide cattle industry billions of dollars. Having identified *N. caninum* as the cause, Dubey developed tests to identify it, discovered its life cycle, and led research into developing a vaccine.

Equine protozoal myeloencephalitis (EPM) costs the U.S. horse industry more than $100 million yearly. Dubey identified the cause of EPM—*Sarcocystis neurona*—and developed a diagnostic test. He furthermore elucidated the protozoa's life cycle and discovered the drugs used to treat the disease.

Dubey has received the Medal of the *Toxoplasma* Centennial Congress, the Eminent Parasitologist Award and the Barclay McGhee Award in Protozoology from the American Society of Parasitologists, the Presidential Rank Award of Meritorious Senior Professional, and Technology Transfer Award from USDA, Agricultural Research Service. He is a member of the National Academy of Sciences.

Ronald L. Horst

Acting Center Director (Retired)
National Animal Disease Center
Ames, Iowa

For research on calcium and vitamin D metabolism resulting in strategies to prevent milk fever in dairy cows and for insight into bone disease.

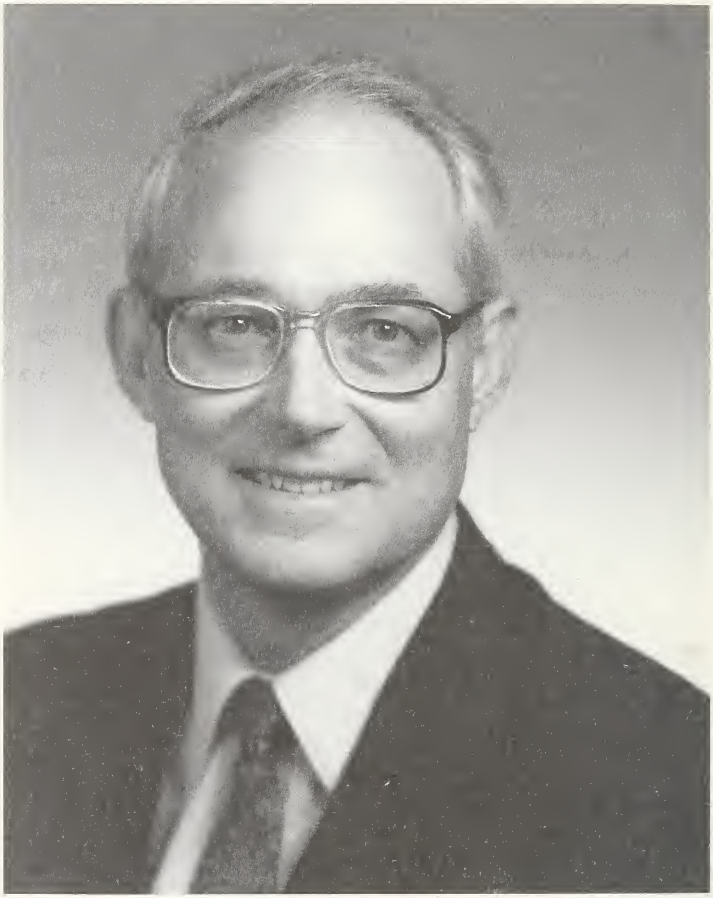
Ronald Horst is known throughout the world for his work on milk fever in dairy cattle, vitamin D metabolism, and assays.

Milk fever is a common metabolic disorder of cattle that costs the dairy industry $250 million every year. Horst discovered the cause of milk fever and its association with high levels of dietary potassium, which leads to dangerously low levels of calcium. He and his associates found that the addition of hydrochloric acid to cows' feed reduces the incidence of milk fever. The dairy industry has saved millions of dollars annually because of Horst's work.

Horst also elucidated the processes of activation and deactivation of fat-soluble vitamins, including vitamin D. His work produced a series of revolutionary analytical methods for monitoring the products of these processes. Besides their importance in the dairy, beef, swine, and poultry industries, these methods have been applied to human medicine, in particular enhancing the understanding of renal failure and osteoporosis.

Horst has been honored with the American Feed Manufacturing Association Award for Dairy Nutrition, the Upjohn Physiology Award, the Agway Inc. Young Scientist Award, the Dean Food Award, and the Brown University Award. From the Federal Government, he has received the Presidential Rank Award of Meritorious Senior Professional, USDA's Certificate of Merit, and Scientist of the Year from USDA, Agricultural Research Service.

He is a Fellow of the American Dairy Science Association.



L. Dale Van Vleck

Research Geneticist (Retired)
U.S. Meat Animal Research Center
Clay Center, Nebraska

For extraordinary contributions in expanding quantitative genetic and statistical theory and in developing computational procedures that had an impact in genetic improvement programs for livestock worldwide.

Dale Van Vleck is noted for his outstanding work in developing computational methods for the selection of breeding animals based on genetic characteristics.

Van Vleck's greatest achievement is the development and release of general purpose software for estimation of genetic parameters from experimental and industry data. This involved a revolutionary breakthrough in computer strategy that reduced the time needed to process complex data by as much as 600-fold.

He was the first to use simulated data to investigate intractable problems such as analysis of threshold traits, and he devised the "animal model" to estimate genetic parameters required to predict breeding values of dairy cattle. Van Vleck also developed an original procedure to compare the genetic value of bulls across breeds—Angus versus Simmental, for instance; previously bulls could only be compared within a breed.

Today, the techniques developed by Van Vleck are used around the globe.

Van Vleck's honors include the Animal Breeding and Genetics Award and Morrison Award, American Society of Animal Science; National Association of Animal Breeders Award; Jay L. Lush Award, American Dairy Science Association; Pioneer Award, Beef Improvement Federation; International Distinguished Achievement in Agriculture Award and other awards, Gamma Sigma Delta; Pioneer Award, Beef Improvement Federation; and Living Pioneer Award, National Dairy Shrine.

He is a Fellow of the American Society of Animal Science.

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1986

Edward F. Knipling

For pioneering research and leadership in development of the sterile insect technique, which led to the eradication of the screwworm, and of other technologies to suppress and manage insect pests.

1987

Howard L. Bachrach

For pioneering research on the molecular biology of foot-and-mouth disease that led to development of the world's first effective subunit vaccine for any disease of animals or humans through the use of gene splicing.

Myron K. Brakke

For consistent, career-long valuable contributions to the science of virology, particularly plant virology.

Glenn W. Burton

For outstanding achievements in forage and turf science, which have had extraordinary effects on the forage-based cattle industry, the turf industry, and agriculture worldwide.

Wilson A. Reeves

For outstanding research and leadership in the field of textile chemical finishing that have significantly benefited agriculture and consumers.

Earnest R. Sears

For pioneering work in wheat genetics and for discoveries on chromosomal mechanisms that established standards in animal, plant, and human genetics.

Orville A. Vogel

For development of the first useful semidwarf wheats and of innovative production systems that made the Pacific Northwest a major source of soft white wheat, inspired similar research efforts throughout the world, and sparked the Green Revolution.

Cecil H. Wadleigh

For elucidating the mechanisms through which crops respond to salinity and water stress and for inspired planning and leadership that enabled and motivated those who worked with him to expand and make use of knowledge of soils, water, and air and their interactions with plants.

1988

Francis E. Clark

For outstanding research leading to greater understanding of soil, plant, and microbial interactions and of nutrient cycling in terrestrial ecosystems.

Edgar E. Hartwig

For research in soybean breeding and genetics that has been a major factor in soybeans becoming the second most valuable U.S. crop and particularly for developing cultivars that thrive in the South.

Ralph E. Hodgson

For significant contributions to the knowledge of ruminant nutrition and for visionary leadership, both domestic and international, in the animal industries.

Hamish N. Munro

For career-long contributions to the science of nutrition, particularly on the relationship of dietary protein and iron to the health of the elderly, and for promotion of studies on aging.

Jose Vicent-Chandler

For research leading to new and greatly improved production systems for beef, milk, coffee, plantains, and rice for Puerto Rico and Caribbean countries.

1989

Douglas R. Dewey

For world leadership in genetics and taxonomy of the Triticeae tribe of grasses and for development of the cytogenetic basis for creating new grass hybrids.

Theodor O. Diener

For conceptualizing and discovering viroids, for leading research on viroid detection and control, and for inspiring new approaches in the search for causes of several serious diseases affecting plants, livestock, and humans.

Karl H. Norris

For developing principles and instruments using the electromagnetic wave spectrum to make rapid nondestructive measurements for evaluating quality of agricultural products.

John F. Sullivan

For engineering contributions to the food-processing and preservation industries, including development of instant potato flakes and of batch and continuous-explosion puffing.

1990

Theodore C. Byerly

For extraordinary contributions as a scientist, research leader, and administrator to the success of agricultural research programs and advances in U.S. and world agriculture.

Gordon Dickerson

For research contributions widely used by breeders to increase production efficiency of cattle, sheep, swine, and poultry.

Robert W. Holley

For isolation and characterization, including the first nucleotide sequence, of transfer ribonucleic acid (tRNA).

Virgil A. Johnson

For outstanding contributions to development of superior bread wheat cultivars and of improved wheat germplasm and for vigorous promotion of national and international cooperation among wheat breeders.

George F. Sprague

For outstanding contributions to effective methods of hybrid corn breeding and germplasm improvement.

1991

John H. Weinberger

For outstanding lifelong contributions in development of fruit varieties and fruit-breeding technology.

Walter H. Wischmeier

For developing the Universal Soil Loss Equation, which has been widely used for three decades worldwide in conservation and management of our natural resources.

1992

Raymond C. Bushland

For pioneering research leading to screwworm eradication by the sterile insect technique and for research leading to control of typhus vectors.

Lyman B. Crittenden

For significant contributions to retroviral genetics, transgenic animal development, and genome mapping in poultry.

Arnel R. Hallauer

For increasing understanding and use of quantitative genetics in plant breeding, which has led to development of many superior corn hybrids worldwide.

1993

John R. Gorham

For scientific leadership and studies that have resulted in solutions of disease control problems and have advanced the basic knowledge of viral and genetic diseases in humans and animals.

Sterling B. Hendricks

For significant contributions as a chemist, physicist, mathematician, plant physiologist, geologist, and mineralogist.

Clair E. Terrill

For scientific contributions and worldwide leadership in sheep production research.

1994

Charles N. Bollich

In recognition of superlative accomplishments in rice breeding and genetics and their consequent benefits to American agriculture.

Chester G. McWhorter

For outstanding contributions to American agriculture through basic and applied research that has resulted in improved weed-management technology, increased yields, and reduced cost of production.

Malcolm J. Thompson

For career research contributions in the field of insect and plant steroid biochemistry.

1995

Harry Alfred Borthwick

In recognition of contributions in elucidating the importance of photoperiodic mechanisms controlling flowering in plants.

William M. Doane

For initiating, leading, and conducting research that created new and useful products and led to the establishment of new industries based on agricultural raw materials.

Walter Mertz, M.D.

For contributions and leadership in elucidating the importance to health of several trace elements and promoting research on dietary risk factors for chronic disorders.

1996

Fred W. Blaisdell

For pioneering research and development of improved structures for soil and water conservation.

Herbert J. Dutton

For pioneering research leading to the establishment of soybean oil as the predominant edible vegetable oil in the world.

Charles Jackson Hearn

For developing improved orange, grapefruit, and tangerine varieties used extensively by U.S. citrus producers to replace trees killed by the 1980 freezes and to expand the citrus acreage.

1997

Morton Beroza

For major contributions to the development of environmentally compatible insect control strategies through discovery of lures, attractants, repellents, and pheromones.

R. James Cook

For extraordinary research on sustainable approaches to improve wheat health and for leadership in the transfer of information and technology resulting in solutions to agricultural problems.

William L. Ogren

For outstanding leadership and fundamental contributions to photosynthetic carbon metabolism leading to the discovery of new opportunities to improve the efficiency and productivity of crop plants.

1998

Thomas J. Henneberry

For conducting basic and applied individual and team research that has had sustained global impact on development and implementation of integrated pest management systems.

James H. Tumlinson III

For research that led to eradication of the boll weevil from the southeastern United States and the discovery of the chemical basis of plant-insect-parasite interaction.

1999

Allene R. Jeanes

For microbiological, chemical, and engineering research that created urgently needed, life-saving industrial polymers made from agricultural commodities.

Charles W. Stuber
For pioneering the use of molecular markers in identifying, mapping, and manipulating quantitative trait genes.

Richard L. Witter
For outstanding research contributions and leadership in the field of avian tumor viruses.

2000

Virginia H. Holsinger
For research leading to increased use of milk products and for humanitarian efforts in developing nutritious formulations for international food donation programs.

Marvin E. Jensen
For advancements in irrigation scheduling using computer models to estimate soil-water balance and for advancements in evapotranspiration theory.

Harley W. Moon
For contributions to a fundamental understanding of intestinal diseases in livestock and for development of effective control programs for these diseases.

2001

Lawrence A. Johnson
For pioneering research in developing the first useful technology for gender preselection of animal and human offspring and for outstanding contributions to semen preservation and artificial insemination in swine.

William E. Larson
In recognition of a pioneer who respected soil as a natural resource and devoted a research career toward improving its quality.

William L. Mengeling
For outstanding research contributions and leadership in the field of viral diseases of swine.

2002

George Inglett
In recognition of the development of novel, patented food ingredients including Oatrim and Nutrim, which have had a sustained beneficial effect on the American diet.

K. Darwin Murrell

For landmark research on parasites of veterinary and medical importance, especially trichinellosis of swine, and innovative development and leadership of laboratory and agency-level programs that established and advanced objectives of the Agricultural Research Service.

Stuart O. Nelson

For pioneering research on the dielectric properties of agricultural materials, applications of radio-frequency and microwave energy, and electrical measurements for moisture sensing in cereal grains.

2003

Edward B. Bagley

For outstanding research in rheology and food science that generated fundamental understanding of flow mechanics; and for pioneering concepts in super-absorbent materials that resulted in one of the most successful technology transfers in USDA history.

Janice M. Miller

For pioneering research in understanding, diagnosing, and controlling bovine leukemia, transmissible spongiform encephalopathies, and other chronic infectious or zoonotic diseases of ruminants.

2004

Donald K. Barnes

For remarkable contributions to alfalfa breeding and genetics, mentoring of plant breeding students, and service to ARS and the scientific community.

Ruth Rogan Benerito

For applying physical chemistry to solve problems that led to improved procedures and new uses for renewable resources such as cotton, wood, and paper.

Keith E. Gregory

For outstanding research contributions in genetics and breeding of beef cattle and for leadership of ARS research programs.

2005

Charles W. Beard

For outstanding contributions in poultry health research, in professional and organizational leadership, and in developing biocontainment concepts and systems for animal agriculture.

Nelson A. Cox

For lifetime contributions of distinctive research benefitting the poultry industry and public health through development and transfer of technologies that reduced foodborne pathogens, particularly Salmonella and Campylobacter.

Sigmund Schwimmer

For a distinguished career of scientific excellence in enzymology and its application to food science and human food products and quality.

Tien C. Tso

For outstanding research contributions and leadership in plant physiology and phytochemistry and their use to advance plant science.

2006

Wayne W. Hanna

For significant scientific contributions to U.S. food production and the national recreation industries and for related scientific achievements for research on apomixis and interspecific germplasm transfer.

Ray D. Jackson

For elucidating the basis of soil-plant-water-atmosphere relationships and developing innovative methods to assess and manage crop status through remote sensing.

Vernon G. Pursel

For lifetime contributions to genetic and reproductive development of livestock through pioneering research in genetic engineering and semen preservation.

2007

Johnie N. Jenkins

For pioneering leadership, vision, innovative cotton host plant resistance research and technologies, impact on science, and development and mentoring of young scientists.

Dennis Gonsalves

For pioneering research and leadership in plant pathology and biotechnology to increase agricultural productivity and improve human health.

Janet C. King

For national and international leadership and research achievement in human nutrition.

2008

Robert E. Davis

For meritorious and exemplary contributions to the science of plant pathology and for a dedicated career of service to the Agricultural Research Service.

Andrew N. Sharpley

For pioneering nutrient research leading to the development of agricultural management practices and strategies that are used nationally and internationally to protect water quality.

2009

Max J. Paape

In recognition of exceptional research and leadership that enhanced animal and human health through advances in the identification, control, and prevention of bovine mastitis.

J. Neil Rutger

For demonstrating the usefulness of induction, evaluation, and integration of mutants in rice genetics and breeding.

B.A. Stewart

For exceptional research on soil and crop management practices and outstanding leadership of local, national, and international research programs to sustain our natural resources.